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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,336	11/19/2003	Kurt M. Vanden Bussche	108370	8255
23490	7590	10/03/2005	EXAMINER	
JOHN G TOLOMEI, PATENT DEPARTMENT			SOOHOO, TONY GLEN	
UOP LLC			ART UNIT	PAPER NUMBER
25 EAST ALGONQUIN ROAD			1723	
P O BOX 5017				
DES PLAINES, IL 60017-5017				
DATE MAILED: 10/03/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/717,336	VANDEN BUSSCHE ET AL.	
	Examiner Tony G. Soohoo	Art Unit 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on 1-31-2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2 sheets</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Berry 3507116.

The Berry reference teaches an assembly made of a unified layer of elements having 1<sup>st</sup> supply channel 10, 20, 2<sup>nd</sup> supply channel 14, 19, where one is radial and the other is tangential; a mixing chamber in the layer 11, 12; and an outlet at the layer with outlet 15. Note that the diameter lengths of an outlet characteristic length is less than or equal to a inlet characteristic length. Whereby the characteristic length defined the claim(s) are so imprecise that one may choose any portion of the inlet or outlet geometry portions such that the dimensions are of the recited limitations of the claim.

3. Claims 1-3 and 11, 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Wagner et al 3794299.

The Wagner (et al) reference teaches an assembly made of a unified layer of elements having 1<sup>st</sup> supply channel 38, 2<sup>nd</sup> supply channel 24, where one is radial and the other is tangential; a mixing chamber in the layer 18; and an outlet at the layer at 22 with outlet 20. Note that one may choose a diameter length of an outlet characteristic

length such that it is less than or equal to a chosen inlet characteristic length. Whereby the characteristic length defined the claim(s) are so imprecise that one may choose any portion of the inlet or outlet geometry portions such that the dimensions are of the recited limitations of the claim. With regards to the mixing chamber note that the shape appears substantially cylindrical.

4. Claims 1-3 and 11, 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by El-Saie 4498819.

The El-Saie reference teaches an assembly made of a unified layer of elements having a 1<sup>st</sup> supply channel 16, 2<sup>nd</sup> supply channel 20, where one is radial and the other is tangential; a mixing chamber in the layer at 11; and an outlet at the layer at 19 with outlet opening to 21 Note that one may choose a diameter length of an outlet characteristic length such that it is less than or equal to a chosen inlet characteristic length. Whereby the characteristic length defined the claim(s) are so imprecise that one may choose any portion of the inlet or outlet geometry portions such that the dimensions are of the recited limitations of the claim. With regards to the mixing chamber note that the shape appears substantially cylindrical.

5. Claims 1-3 and 11, 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ririe 3643406.

The Ririe reference teaches an assembly made of a unified layer of elements having a 1<sup>st</sup> supply channel 14, 2<sup>nd</sup> supply channel 16,18, where one is radial and the

other is tangential; a mixing chamber in the layer at 2; and an outlet at the layer at 20 with outlet opening to 20. Note that one may choose a diameter length of an outlet characteristic length such that it is less than or equal to a chosen inlet characteristic length. Whereby the characteristic length defined the claim(s) are so imprecise that one may choose any portion of the inlet or outlet geometry portions such that the dimensions are of the recited limitations of the claim. With regards to the mixing chamber note that the shape appears substantially cylindrical.

6. Claims 1-3, 6 and 8-9, 11-12, 15-18, 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohki et al 4983038.

The Ohki (et al) reference teaches an assembly made of a unified layer of elements having a 1<sup>st</sup> supply channel 5 or 5 which flow material tangentially along the sides of the mixing chamber 6, 7; a radial 2<sup>nd</sup> supply channel which flows material radially along the center of the mixing chamber; a mixing chamber in the layer at 6,7 and having an outlet at the bottom of the substantially cylindrical cross section 7. Note that one may choose a diameter length of an outlet characteristic length such that it is less than or equal to a chosen inlet characteristic length. Whereby the characteristic length defined the claim(s) are so imprecise that one may choose any portion of the inlet or outlet geometry portions such that the dimensions are of the recited limitations of the claim such as portion of the height below of the mixing chamber outlet 7 versus the diameter of 7. With regards to the mixing chamber, note that the shape portion of the

mixing chamber appears substantially cylindrical at 7 and whereby the claim is of an open construction, the mixing chamber may also have the radial channel portion 6.

With regards to the feed channels 5 and 5, it may be deemed that the two separate feed sections are definable as a manifold.

In response to the use of a mixer, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987). The Ohki ref as discussed above shows all of the recited elements as pointed out above.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 4, 7, 10, 13, 19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohki et al 4983

The Ohki (et al) reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of the particulars of the relative dimensions, size ratio of the mixing chamber, channels, inlet, or outlet geometry , and the thickness and types materials used of the device

With regards to the relative sizes dimensions of the mixing chamber, channels, inlet or outlet, such features are a positive known effective variable in the amount of material flow in the operation of the device, accordingly, it is deemed that it would have

been obvious to one of ordinary skill in the art to modify the sizes and relative sizes to optimize a desired processing flow rate in the device, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) . whereby, such an optimization would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

With regards to the material to be used in the layers, the use of the materials such as polymers, metals, alloys, glass, quartz, ceramic and semiconductor materials are old and well known in the fluidic processing laminate structure art, thus, it is deemed that it would have been obvious to one of ordinary skill in the art to choose any such known material so as to provide a more effectively manufactured laminate structure. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

### ***Double Patenting***

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 6,655,829. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims require the particulars of the relative dimensions, size ratio of the mixing chamber, channels, inlet, or outlet geometry .

With regards to the relative sizes dimensions of the mixing chamber, channels, inlet or outlet, such features are a positive known effective variable in the amount of material flow in the operation of the device, accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to modify the sizes and relative sizes to optimize a desired processing flow rate in the device, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) . whereby, such an optimization would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

10. Claims 11-23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim1-28 of U.S. Patent No. 6,655,829 in view of Manz 5250263.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims require; the particulars of construction of having layers; and the relative dimensions, size ratio of the mixing chamber, channels, inlet, or outlet geometry; and the thickness and types materials used of the device.

The reference to Manz teaches that it is known as a construction technique to form channels from layers. Accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to modify the structure of the claims to be constructed upon layers as taught by Manz so as to ease manufacture.

With regards to the relative sizes dimensions of the mixing chamber, channels, inlet or outlet, such features are a positive known effective variable in the amount of material flow in the operation of the device, accordingly, it is deemed that it would have been obvious to one of ordinary skill in the art to modify the sizes and relative sizes to optimize a desired processing flow rate in the device, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) . whereby, such an optimization would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

With regards to the material to be used in the layers, the use of the materials such as polymers, metals, alloys, glass, quartz, ceramic and semiconductor materials are old and well known in the fluidic processing laminate structure art, thus, it is deemed that it would have been obvious to one of ordinary skill in the art to choose any such known material so as to provide a more effectively manufactured laminate structure. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following disclose additional examples of mixing chambers having radial and tangential inlets: Chen et al US 2003/0165079, Levesque et al 4019720, Sharples 3261593, Fassbender et al 5695648, Joachim et al 2307509. PTO 1449 cited reference GB 909865 highlighted as an example of radial and tangential inlets.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G. Soohoo whose telephone number is (571) 272 1147. The examiner can normally be reached on 7-5PM,Tue-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1723

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tony G Soohoo  
Primary Examiner  
Art Unit 1723

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